

WHAT IS CLAIMED IS

1. A system for extracting samples from a stream flowing in a conduit, comprising:

5 a. a probe located in said conduit, said probe including a channel for passing a sample flow from the conduit for analysis; and

10 b. regulating means for controlling the velocity of the sample flow through said probe channel to correspond to the velocity of the stream flowing in the conduit, said regulating means comprising means for generating a feedback signal representing the relative velocities of the stream flowing in the conduit and the sample flow through said probe channel.

15 2. The system of claim 1 in which said means for generating a feedback signal further comprises first pressure measuring means for determining the pressure within said probe channel, second pressure measuring means for determining the pressure in the conduit, and comparator means for measuring the pressure differential between pressure determined said first and second pressure measuring means and for generating a signal representative of said pressure differential.

20 3. The system of claim 1 which additionally comprises a dilution conduit carrying diluent fluid from a source, said probe channel communicating with said dilution conduit at a place of entry downstream from said ambient air source.

25 4. The system of claims 3 which further comprises valve means for regulating the flow rate of diluent fluid in said

dilution conduit according to said comparator means signal and the flow of sample from said probe channel, thereby.

5. The system of claim 4 in which said valve means is located in said dilution conduit between said place of entry of said sample from said probe channel and said source of diluent fluid.

6. The system of claim 5 in which said dilution conduit further includes a pump.

7. The system of claim 6 in which said dilution conduit 10 further includes a filter for filtering said source of diluent fluid.

8. The system of claim 7 which further comprises a sample tap extending into said dilution conduit at a place downstream of said place of entry of sample from said probe 15 channel.

9. The system of claim 8 which additionally comprises means for continuously measuring the concentration of constituents in said sample tap.

10. The system of claim 8 in which additionally comprises means for measuring the concentration of constituents in 20 said sample tap on a batch basis.

11. The system of claim 10 which additionally comprises means for continuously measuring the amount of constituents is said sample tap.

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12. The system of claim 1 which additionally comprises a filter for capturing particulate matter, said filter communicating with said probe channel.

13. The system of claim 12 which additionally comprises 5 a pump, said regulating means feedback signal controlling the pump flow rate of said pump to isokinetically deliver sample from said probe channel to said filter.

14. the system of claim 13 in which said means for generating a feedback signal further comprises first pressure 10 measuring means for determining the pressure within said probe channel, second pressure measuring means for determining the pressure in the conduit, and comparator means for measuring the pressure differential between pressure determined by said first and second pressure measuring means and for generating a signal 15 representative of said pressure differential.

15. The system of claim 13 which additionally comprises a condenser communicating with the pump to generate liquid matter from said sample flowing from said probe channel and a dry gas meter communicating with said pump for measuring the volume of gas 20 in said sample flowing from said probe channel.

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